Polycystic Ovarian Syndrome

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KEYWORDS

• Polycystic ovarian syndrome • Anovulation • Hyperandrogenism • Insulin resistance • Infertility • Type 2 diabetes

KEY POINTS

- Polycystic ovarian syndrome (PCOS) is a heterogeneous endocrine disorder characterized by anovulation, hyperandrogenism, infertility, and metabolic dysfunction.
- Diagnosis of PCOS is made based on the presence of 2 of 3 criteria: chronic anovulation, clinical or biochemical evidence of hyperandrogenism, and polycystic ovaries on morphology.
- Management of PCOS should be tailored according to the patient's clinical presentation and desire for pregnancy.
- Long-term health implications for metabolic and cardiovascular health need to be addressed throughout the lifespan with an emphasis on prevention of cardiometabolic risks.

INTRODUCTION

Polycystic ovarian syndrome (PCOS) is the most common endocrine disorder in reproductive-aged women. The most recognized description for PCOS comes from Stein and Leventhal in 1935, who described obese women with amenorrhea, hirsutism, and infertility with enlarged and cystic ovaries.

PCOS is a heterogeneous condition with variable phenotypic expression leading to significant controversy on the diagnostic criteria. The prevalence of this disorder is from 6% to 15% depending on the diagnostic criteria used.[1] Every individual experiences a variable severity of the components of PCOS and management needs to be tailored according to the patient's preferences.

CLINICAL PRESENTATION

Key clinical features are anovulation with menstrual irregularities, hyperandrogenism, infertility, and metabolic abnormalities (**Fig. 1**).

Disclosures: None.
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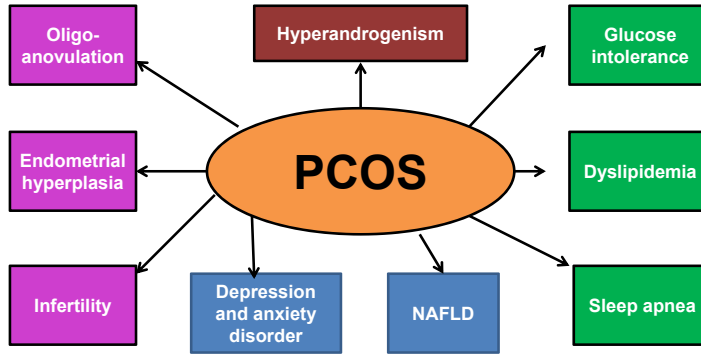

Fig. 1. Clinical components of PCOS. This figure illustrates the clinical features of PCOS that needs to be carefully assessed and addressed. NAFLD, non alcoholic fatty liver disease.

Menstrual Abnormalities

Oligoanovulation typically presents as oligomenorrhea (<9 cycles per year) or amenorrhea. Dysfunctional uterine bleeding is occasionally encountered from unopposed estrogen stimulation with lack of progesterone from anovulation. These menstrual irregularities develop peripubertally and are often noted after periods of weight gain. It is reported that women with PCOS may ovulate spontaneously, although the frequency of this is unknown.[1] Menstrual cycles in women with PCOS tend to become more regular as the women approach menopause.

Infertility

Women with PCOS have a higher risk for infertility from oligoanovulation. Additional mechanisms leading to infertility include diminished oocyte competence,[2] unfavorable endometrial changes, and obesity.

Endometrial Cancer Risk

Women with PCOS have chronic unopposed estrogen exposure resulting in endometrial hyperplasia from anovulation, which may increase the risk for endometrial cancer. Other factors that may compound this risk include chronic hyperinsulinemia, hyperandrogenemia, and obesity.

Hyperandrogenism

Hyperandrogenism is clinically manifested by hirsutism, acne, and androgenic alopecia. Hirsutism is defined as increased terminal (coarse, pigmented) hair in a male pattern distribution around the upper lip, chin, shoulders, chest, periareolar areas, along the linea alba of the abdomen, inner aspects of the thighs, and midline lower back area. The degree of hirsutism can be gauged by the Ferriman-Gallwey score,[3] a semiobjective quantitative method for recording the distribution and severity of excess body hair in 9 skin areas. Documenting these scores objectively helps in evaluating the response of hirsutism to treatment interventions (**Fig. 2**). Photographs before the patient shaves could help document hirsutism precisely.

Other hyperandrogenic signs in women with alopecia include acne and androgenic alopecia. Signs of virilization such as deepening of the voice, clitoromegaly, decreased breast size, and increased muscle mass should alert the clinician to more severe forms of androgen excess (discussed later, with examples).

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